

## Piscataquog Annual Water Use versus Stream Flow – Calendar Year 2003

The Piscataquog Water Management Planning Area covers 180 square miles and includes two streamflow gages (USGS 01091500 PISCATAQUOG RIVER NEAR GOFFSTOWN, NH and USGS 01090800 PISCATAQUOG RIVER BL EVERETT DAM, NR E WEARE, NH). However, these are partial-record stations maintained for the purposes of flood control operations. Reliability of the discharge information at low flows is variable and daily mean flow values are not published for these stations. Streamflow estimations for the Piscataquog were made instead by using three nearby gages-- USGS 01094000 SOUHEGAN RIVER AT MERRIMACK, NH with a watershed area of 170 square miles, USGS 01082000 CONTOOCOOK RIVER AT PETERBOROUGH, NH with a watershed area of 68.1 square miles and USGS 01085500 CONTOOCOOK R BL HOPKINTON DAM AT W HOPKINTON, NH with a watershed area of 426.0 square miles. These gages are on rivers in adjacent watersheds.

The Water Management Planning Area is further complicated by including three branches of the Piscataquog River. The Middle and South Branches join in New Boston and then join the North Branch in Goffstown. The designated portion of the North Branch is divided by Lake Horace and Everett Lake. For this report the streamflow was transposed areal from the average of the surrogate gages to all impact points on the Designated River. There are thirteen registered sources and three registered, measured returns in the Water Management Planning Area. There are none on the Middle Branch, two source on the Lower Branch and two sources on the Upper Branch. The remaining nine sources and the three measured returns are on the portion of the Designated River below the confluences of the three branches.

The assessment for the Piscataquog evaluates the Upper and Lower Branches separately. The Middle Branch is included as a tributary to the Lower Branch in its assessment because there were no registered water users in the Middle Branch in 2003.

The much of the Designated River was not in compliance with the General Standard during the month of July. In July, the Designated River was not in compliance with the General Standard beginning near the Goffstown Village Precinct Water Works to the confluence with the Merrimack River. Also, short reach on the Upper Branch was not in compliance below where Gorham Brook enters as a tributary. The Lower Branch is not in compliance at its headwaters.






The Water Management Planning Area includes registered water use by three hydroelectric facilities. All three are on the mainstem below the three branches. Water use by hydroelectric facilities are not shown in the monthly graphs because flow in is expected to equal flow out and because the General Standard does not apply to hydroelectric facilities between their point of withdrawal and point of return per Env-Ws 1903.02(d). Other water users include a municipal water system at Goffstown and water use for irrigation by three golf courses and at St. Anselm College athletic fields.

The Piscataquog Designated River drains into the Merrimack River upstream of the Lower Merrimack Designated River. The results of this assessment are a component of that river's assessment.

# Piscataquog River Affected Water User Facilities: Source and Discharge Locations

## Legend

### Affected Water Users

-  Source
-  Discharge
-  Stream Gages
-  Active
-  Inactive

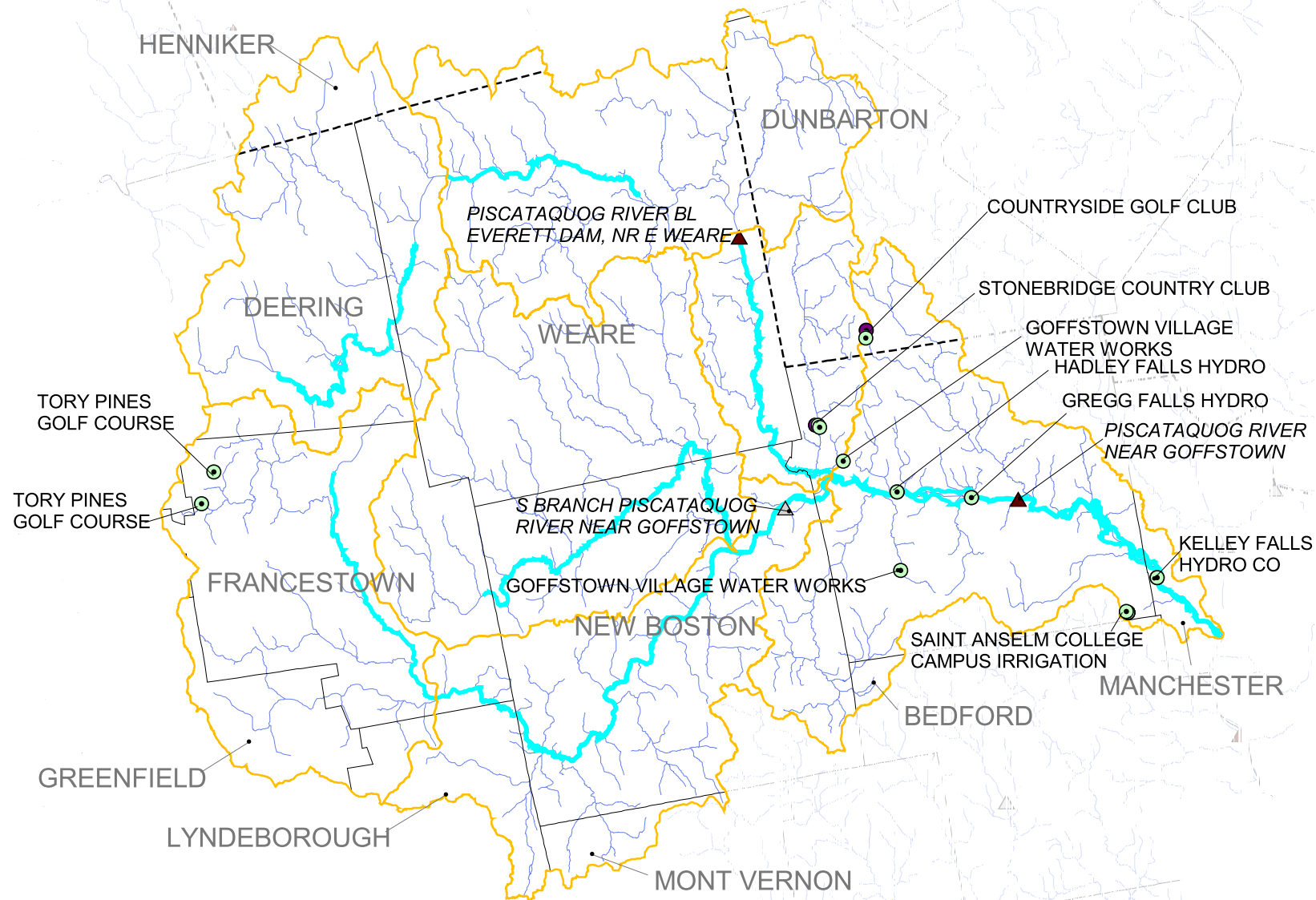
 Designated Reach

 Hydrology

 State boundary

 Town boundary

 WMPA



The coverages presented are under constant revision as new sites or facilities are added. They may not contain all of the potential or existing sites or facilities. NHDES is not responsible for the use or interpretation of this information. Not intended for legal purposes. Water users database last updated January 2004.

Map produced January 30, 2004

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0 1 2 3 4 Miles

### 2003 Lower B Piscataquog Water Use in CFS

[illegible]

## 2003 Lower B Piscataquog Aggregate Water Use in CFS

WU_NAME	FACILITY	WUSD_ID	DA on DR (SQ MILE)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Start point Lower Branch	Pleasant Pond		2.7	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TPR DEVELOPMENT CO	TORY PINES GOLF COURSE	20669 20669-S02	11.2	0.000	0.000	0.000	0.000	0.006	0.015	0.060	0.014	0.021	0.001	0.000	0.000
TPR DEVELOPMENT CO	TORY PINES GOLF COURSE	20669 20669-S01	11.2	0.000	0.000	0.000	0.000	0.013	0.032	0.119	0.033	0.032	0.016	0.000	0.000
Confluence of Middle and Lower Branches	Confluence Middle and Lower Branch		100.8												
End point of Lower Br			103.9												
Confluence Upper and Lower Branches	Confluence Upper and Lower Branches		180.1	0.00	0.00	0.00	0.01	0.09	0.13	0.52	0.25	0.14	0.03	0.00	0.00
GOFFSTOWN VILLAGE PREC	WATER WORKS	20337 20337-S02	180.5	0.000	0.000	0.000	0.006	0.094	0.130	0.610	0.250	0.631	0.208	0.123	0.000
GOFFSTOWN VILLAGE PREC	WATER WORKS	20337 20337-S01	192.4	0.535	0.462	0.470	0.464	0.603	0.689	1.233	0.806	0.631	0.436	0.416	0.301
SAINT ANSELM COLLEGE	CAMPUS IRRIGATION	20652 20652-S04	216.5	0.535	0.462	0.470	0.464	0.605	0.700	1.261	0.812	0.635	0.436	0.416	0.301
SAINT ANSELM COLLEGE	CAMPUS IRRIGATION	20652 20652-S03	216.5	0.535	0.462	0.470	0.464	0.607	0.712	1.289	0.818	0.640	0.436	0.416	0.301
SAINT ANSELM COLLEGE	CAMPUS IRRIGATION	20652 20652-S02	216.5	0.535	0.462	0.470	0.464	0.609	0.723	1.318	0.823	0.644	0.436	0.416	0.301
SAINT ANSELM COLLEGE	CAMPUS IRRIGATION	20652 20652-S01	216.5	0.535	0.462	0.470	0.464	0.611	0.734	1.346	0.829	0.648	0.436	0.416	0.301
End point of DR	Confluence Merrimack and Piscataquog		217.5	0.535	0.462	0.470	0.464	0.611	0.734	1.346	0.829	0.648	0.436	0.416	0.301

Piscataquog Watershed CFSM values

<b>Average of 01094000, 01082000, and 01085500</b>	<b>Calculated 2003 monthly mean streamflow in CFSM</b>		<b>1.39</b>	<b>1.32</b>	<b>4.10</b>	<b>5.20</b>	<b>2.69</b>	<b>1.84</b>	<b>0.28</b>	<b>0.99</b>	<b>0.50</b>	<b>1.37</b>	<b>2.07</b>	<b>3.54</b>
<b>USGS 01094000 SOUHEGAN RIVER AT MERRIMACK, NH</b>	Calculated 2003 monthly mean streamflow in CFSM	<b>171</b>	1.57	1.59	5.21	4.78	3.14	2.00	0.30	0.72	0.42	1.23	1.94	3.87
<b>USGS 01082000 CONTOOCOOK RIVER AT PETERBOROUGH, NH</b>	Calculated 2003 monthly mean streamflow in CFSM	<b>68.1</b>	1.58	1.66	4.41	4.74	2.63	1.91	0.30	1.41	0.61	1.56	2.07	2.60
<b>USGS 01085500 CONTOOCOOK R BL HOPKINTON DAM AT W HOPKINTON, NH</b>	Calculated 2003 monthly mean streamflow in CFSM	<b>427</b>	1.03	0.72	2.69	6.09	2.31	1.60	0.25	0.82	0.48	1.31	2.20	4.16
<b>Average of 01094000, 01082000, and 01085500</b>	General Standard in cfs		0.04	0.04	0.16	0.16	0.04	0.04	0.0044	0.02	0.02	0.04	0.04	0.04
<b>USGS 01094000 SOUHEGAN RIVER AT MERRIMACK, NH</b>	General Standard in cfs	170.0	0.04	0.04	0.16	0.16	0.04	0.04	0.0038	0.02	0.0038	0.04	0.04	0.04
<b>USGS 01082000 CONTOOCOOK RIVER AT PETERBOROUGH, NH</b>	General Standard in cfs	68.1	0.04	0.04	0.16	0.16	0.04	0.04	0.0046	0.04	0.02	0.04	0.04	0.04
<b>USGS 01085500 CONTOOCOOK R BL HOPKINTON DAM AT W HOPKINTON, NH</b>	General Standard in cfs	426.0	0.04	0.02	0.04	0.16	0.04	0.04	0.0047	0.02	0.0047	0.04	0.04	0.16

2003 Lower Br Piscataquog  
Estimated Monthly General  
Standard at Each Impact Point in  
CFS

Average of 01094000, 01082000, and  
01085500

USGS 01094000 SOUHEGAN RIVER AT  
MERRIMACK, NH

USGS 01082000 CONTOOCCOOK RIVER  
AT PETERBOROUGH, NH

USGS 01085500 CONTOOCCOOK R BL  
HOPKINTON DAM AT W HOPKINTON,  
NH

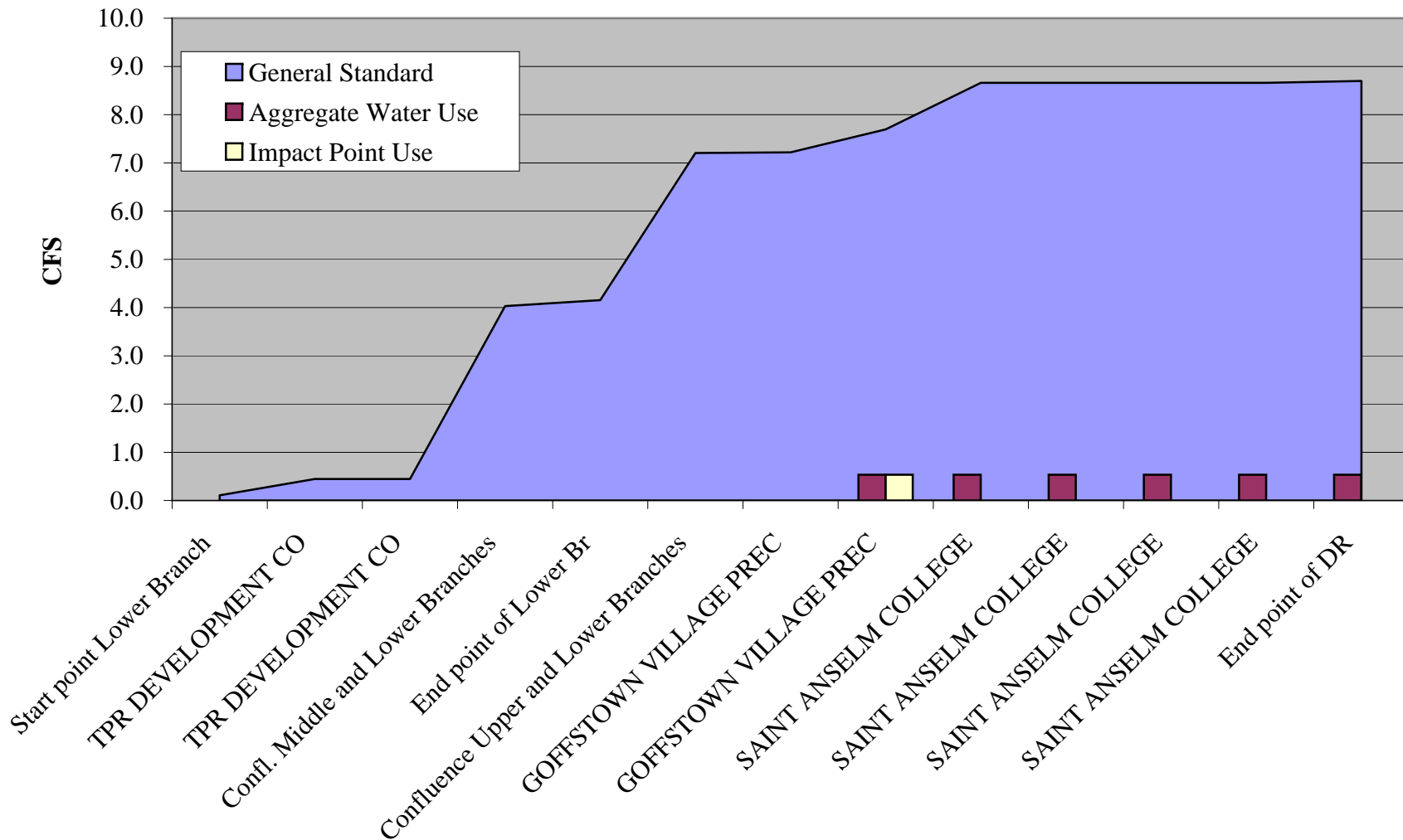
General Standard in cfsm															
	170.0	0.04	0.04	0.16	0.16	0.04	0.04	0.0044	0.02	0.02	0.04	0.04	0.04		
General Standard in cfsm															
	68.1	0.04	0.04	0.16	0.16	0.04	0.04	0.0046	0.04	0.02	0.04	0.04	0.04		
General Standard in cfsm															
	426.0	0.04	0.02	0.04	0.16	0.04	0.04	0.0047	0.02	0.0047	0.04	0.04	0.16		

WU_NAME	FACILITY	WUSD_ID	DA on DR (SQ MILE)	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Start point Lower Branch	Pleasant Pond		2.7	0.1	0.1	0.4	0.4	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1
TPR DEVELOPMENT CO	TORY PINES GOLF COURSE	20669 20669-S02	11.2	0.4	0.4	1.8	1.8	0.4	0.4	0.0	0.2	0.2	0.4	0.4	0.4
TPR DEVELOPMENT CO	TORY PINES GOLF COURSE	20669 20669-S01	11.2	0.4	0.4	1.8	1.8	0.4	0.4	0.0	0.2	0.2	0.4	0.4	0.4
Confluence of Middle and Lower Branches	Confluence Middle and Lower Branch		100.8	4.0	4.0	16.1	16.1	4.0	4.0	0.4	2.0	2.0	4.0	4.0	4.0
End point of Lower Br			103.9	4.2	4.2	16.6	16.6	4.2	4.2	0.5	2.1	2.1	4.2	4.2	4.2
Confluence Upper and Lower Branches	Confluence Upper and Lower Branches		180.1	7.2	7.2	28.8	28.8	7.2	7.2	0.8	3.6	3.6	7.2	7.2	7.2
GOFFSTOWN VILLAGE PREC	WATER WORKS	20337 20337-S02	180.5	7.2	7.2	28.9	28.9	7.2	7.2	0.8	3.6	3.6	7.2	7.2	7.2
GOFFSTOWN VILLAGE PREC	WATER WORKS	20337 20337-S01	192.4	7.7	7.7	30.8	30.8	7.7	7.7	0.8	3.8	3.8	7.7	7.7	7.7
SAINT ANSELM COLLEGE	CAMPUS IRRIGATION	20652 20652-S04	216.5	8.7	8.7	34.6	34.6	8.7	8.7	0.9	4.3	4.3	8.7	8.7	8.7
SAINT ANSELM COLLEGE	CAMPUS IRRIGATION	20652 20652-S03	216.5	8.7	8.7	34.6	34.6	8.7	8.7	0.9	4.3	4.3	8.7	8.7	8.7
SAINT ANSELM COLLEGE	CAMPUS IRRIGATION	20652 20652-S02	216.5	8.7	8.7	34.6	34.6	8.7	8.7	0.9	4.3	4.3	8.7	8.7	8.7
SAINT ANSELM COLLEGE	CAMPUS IRRIGATION	20652 20652-S01	216.5	8.7	8.7	34.6	34.6	8.7	8.7	0.9	4.3	4.3	8.7	8.7	8.7
End point of DR	Confluence Merrimack and Piscataquog		217.5	8.7	8.7	34.8	34.8	8.7	8.7	1.0	4.3	4.3	8.7	8.7	8.7

**2003 Lower Br Piscataquog  
Estimated Monthly Margin of the  
Aggregate Water Use Below the  
General Standard**

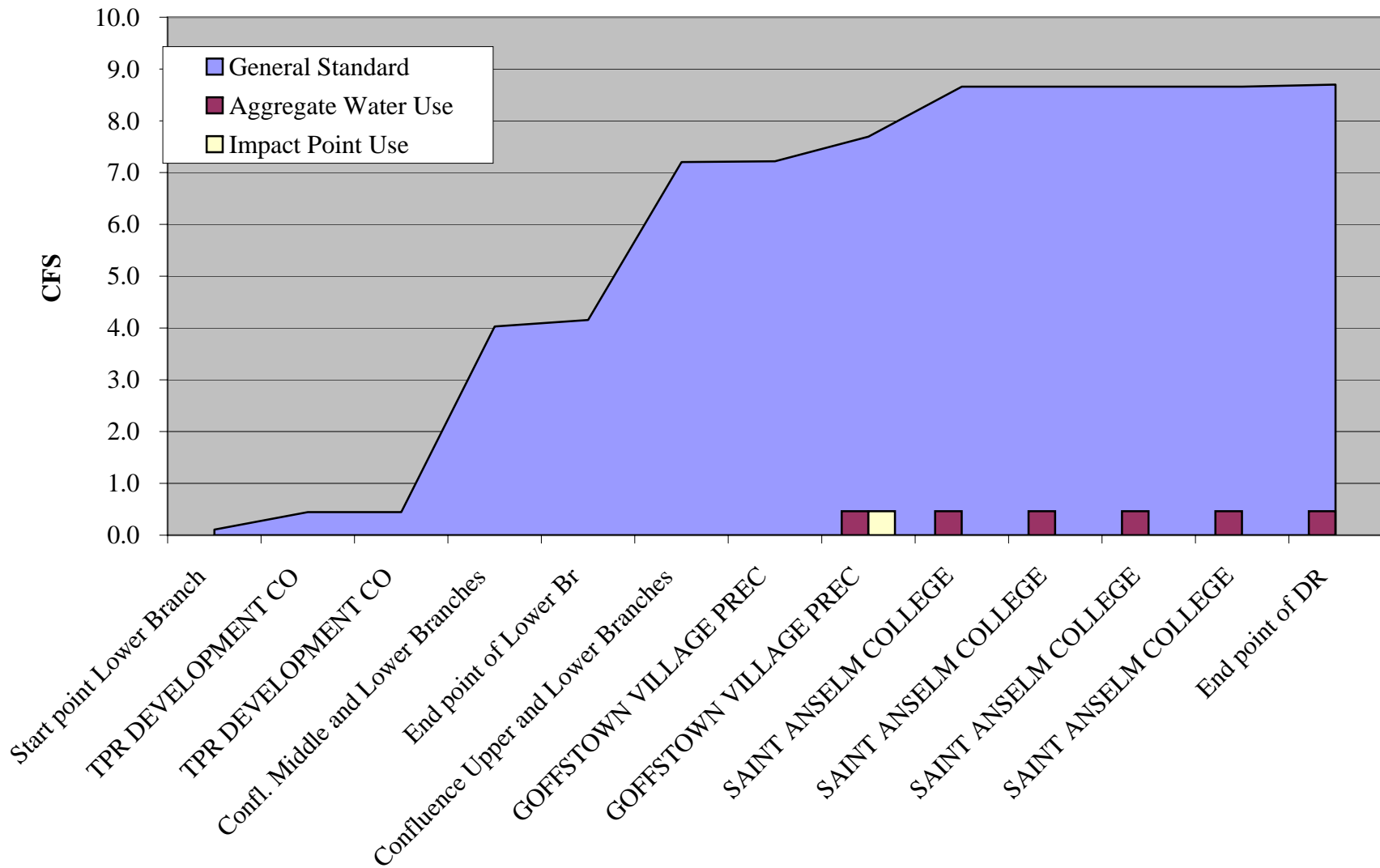
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## January 2003 Lower Branch and mainstem Piscataquog

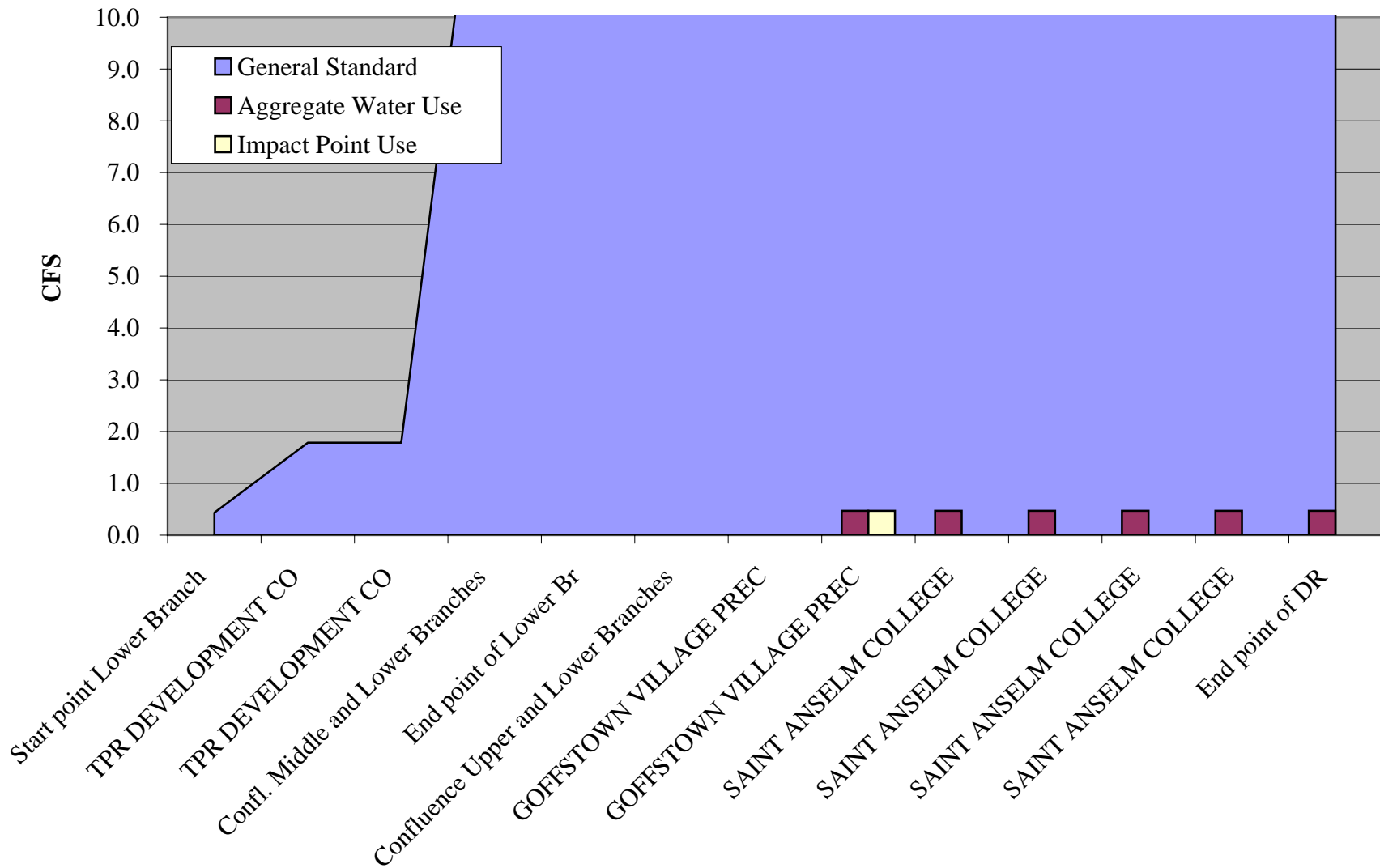




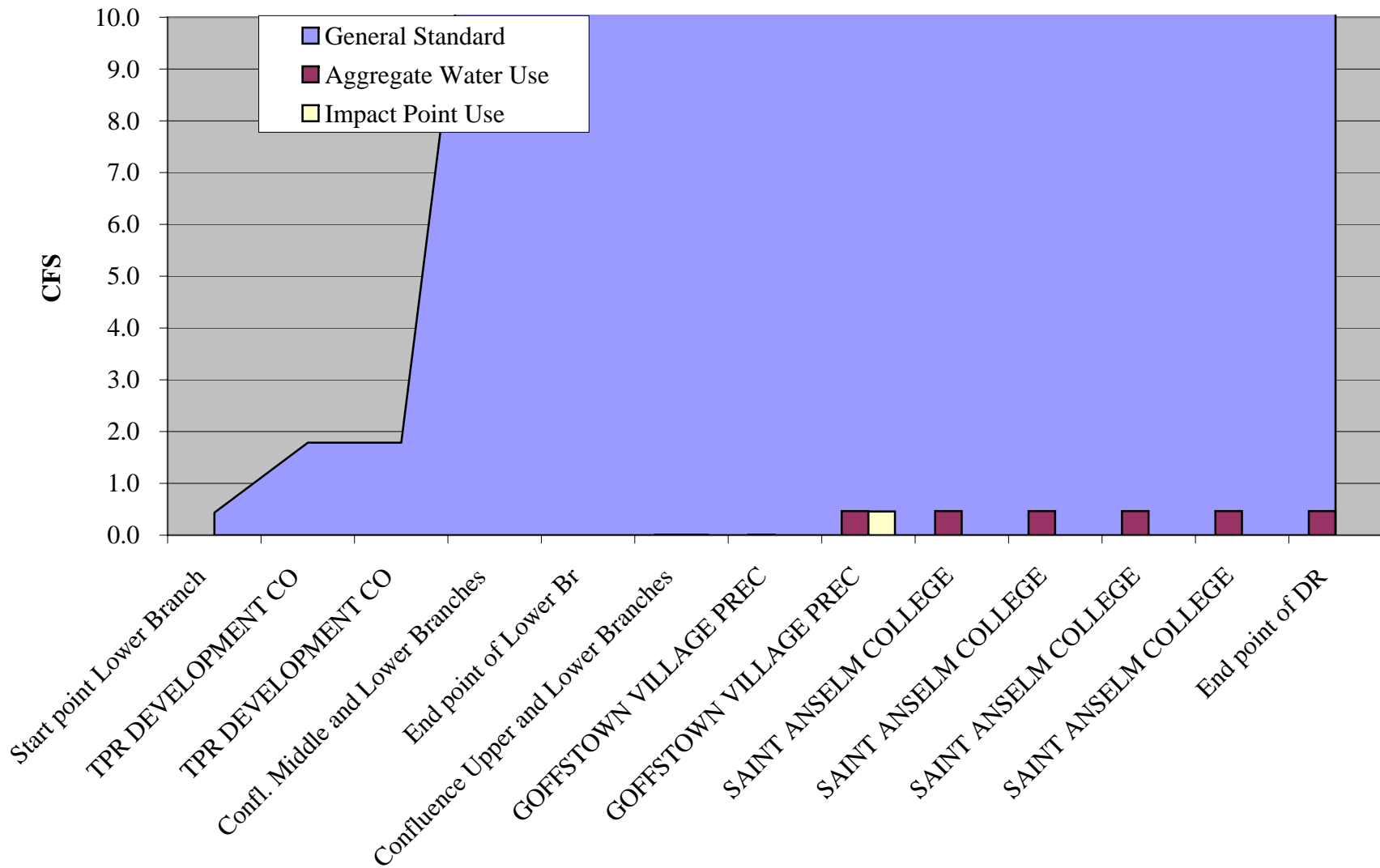
## February 2003 Lower Branch and mainstem Piscataquog



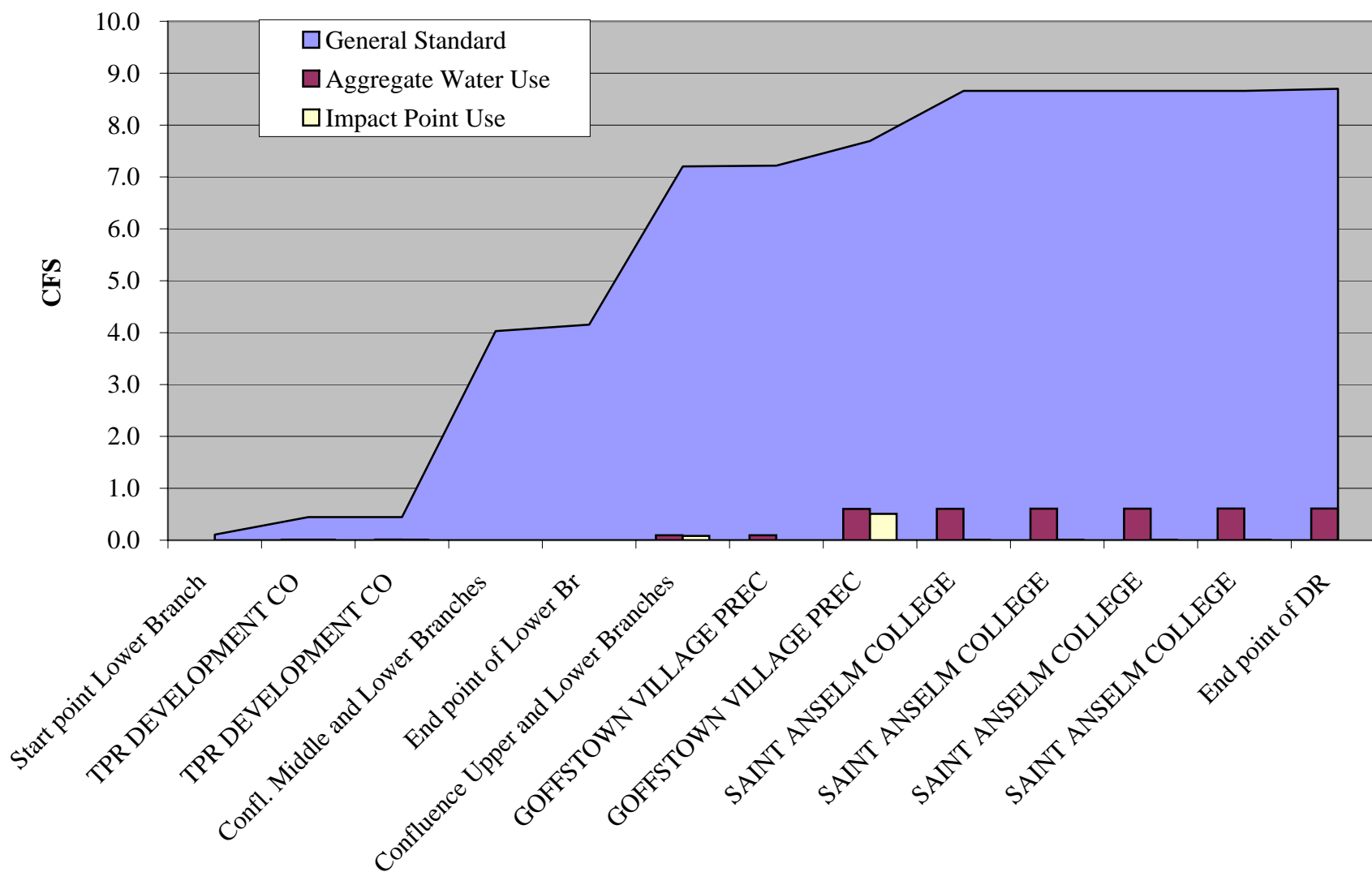
## March 2003 Lower Branch and mainstem Piscataquog



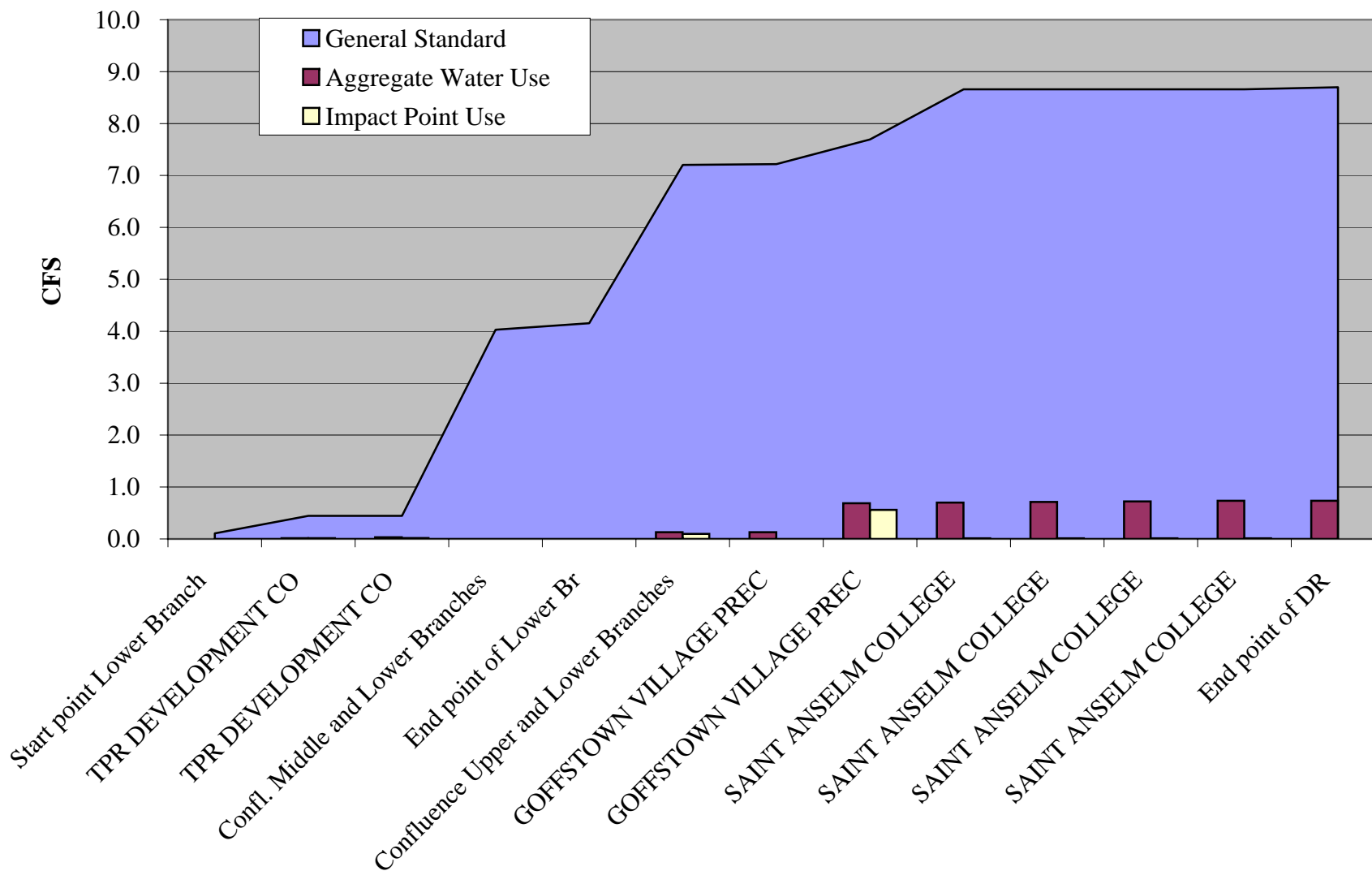
## April 2003 Lower Branch and mainstem Piscataquog



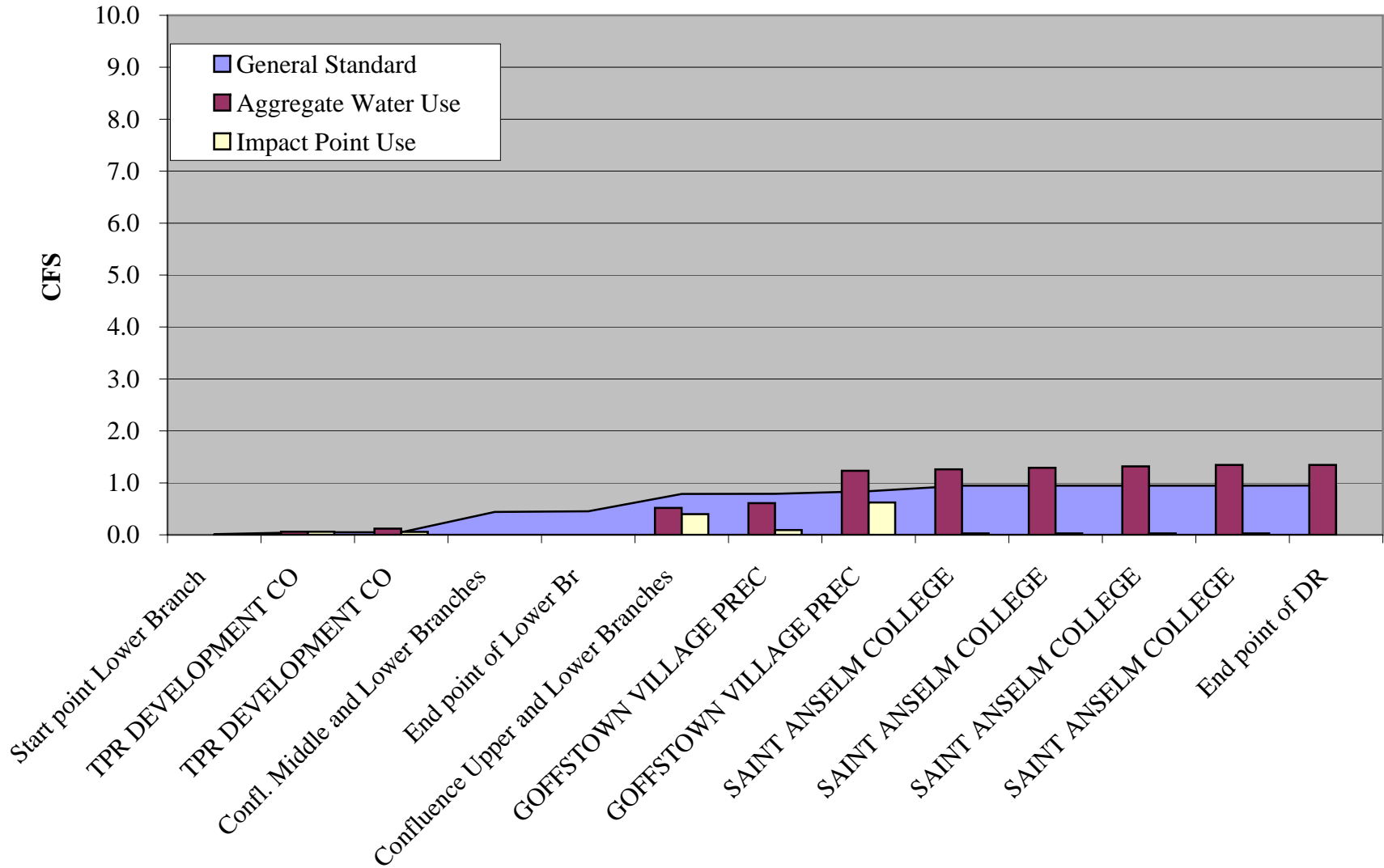
## May 2003 Lower Branch and mainstem Piscataquog



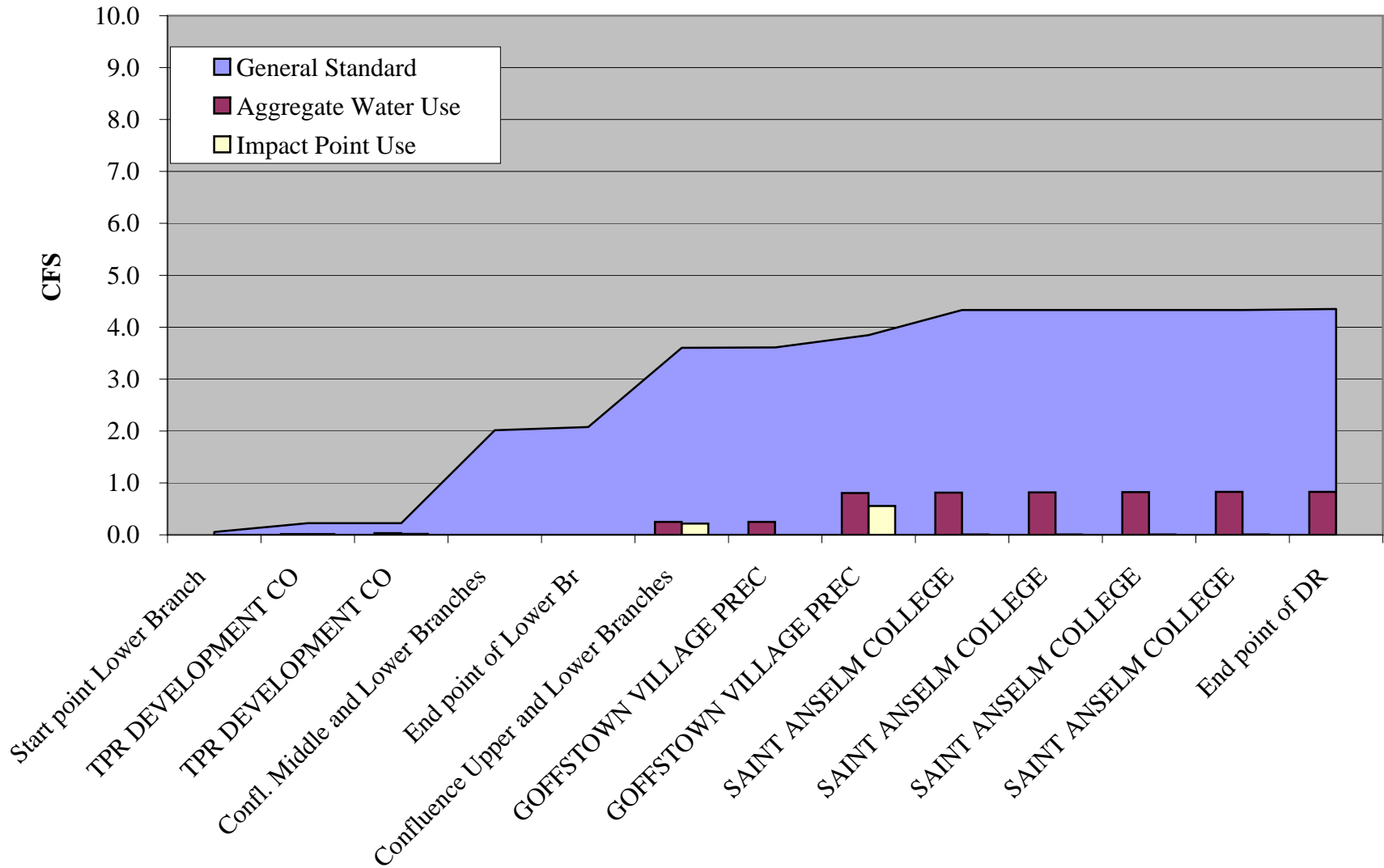
## June 2003 Lower Branch and mainstem Piscataquog



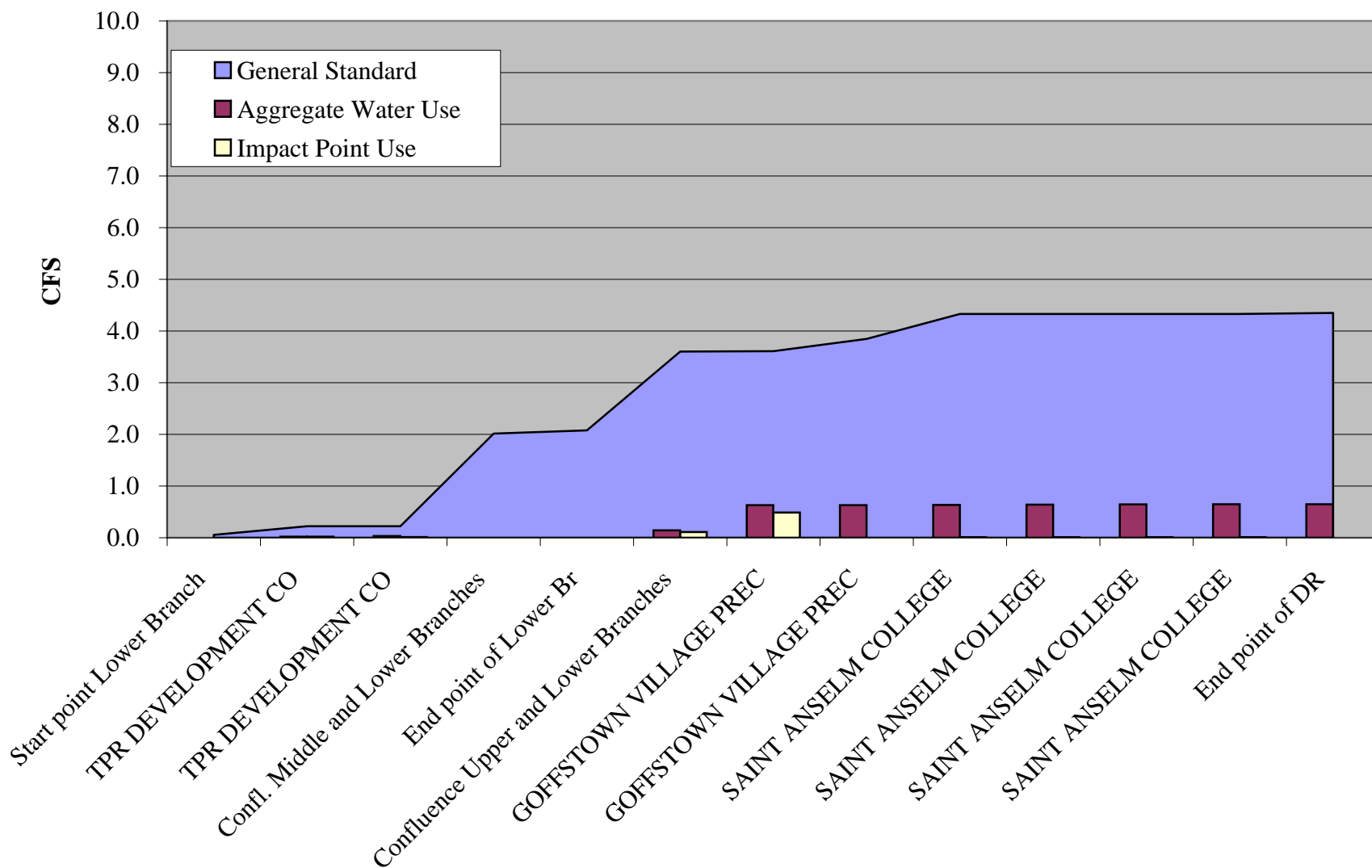
## July 2003 Lower Branch and mainstem Piscataquog



## August 2003 Lower Branch and mainstem Piscataquog

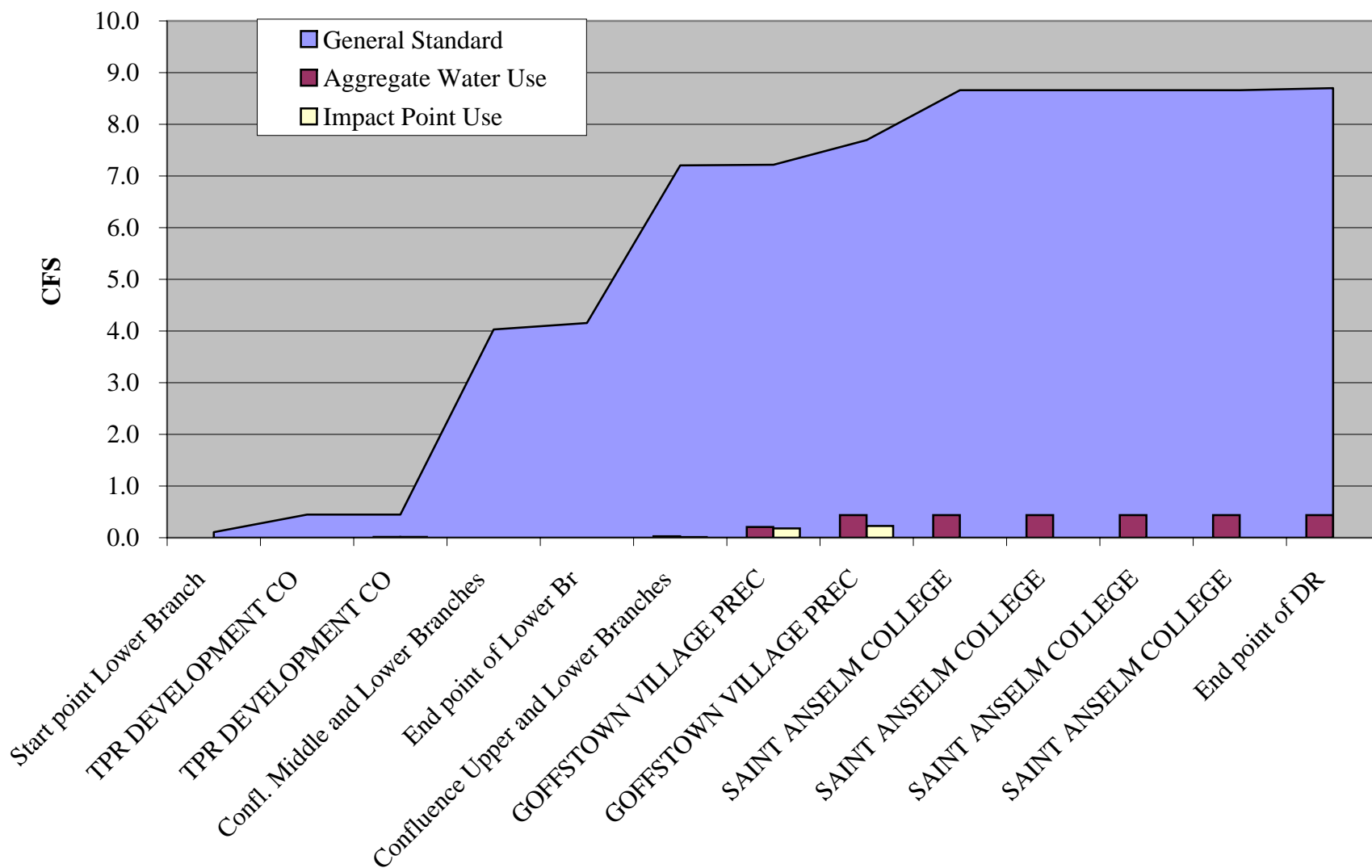


## September 2003 Lower Branch and mainstem Piscataquog

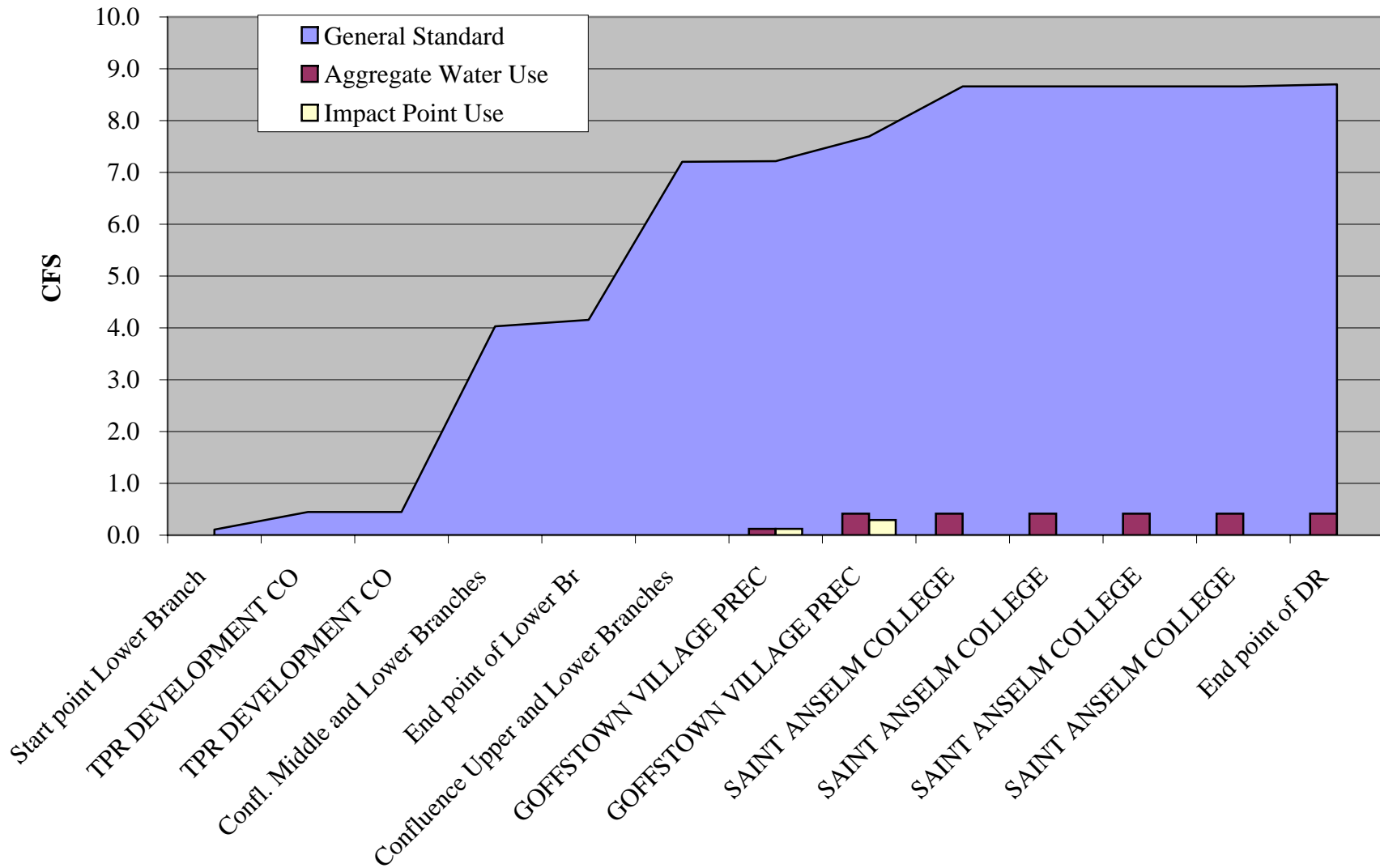




## October 2003 Lower Branch and mainstem Piscataquog



## November 2003 Lower Branch and mainstem Piscataquog



## December 2003 Lower Branch and mainstem Piscataquog

